# Southeastern Wisconsin Coastal Resilience Project

## Building Hazard Resilience through Regional and Local Collaboration


with Todd E Noordyk,

https://www.tmj4.com/news/local-news/somers-home-teetering-over-cliff-along-lake-michigan-could-fall-any-day-due-to-erosion

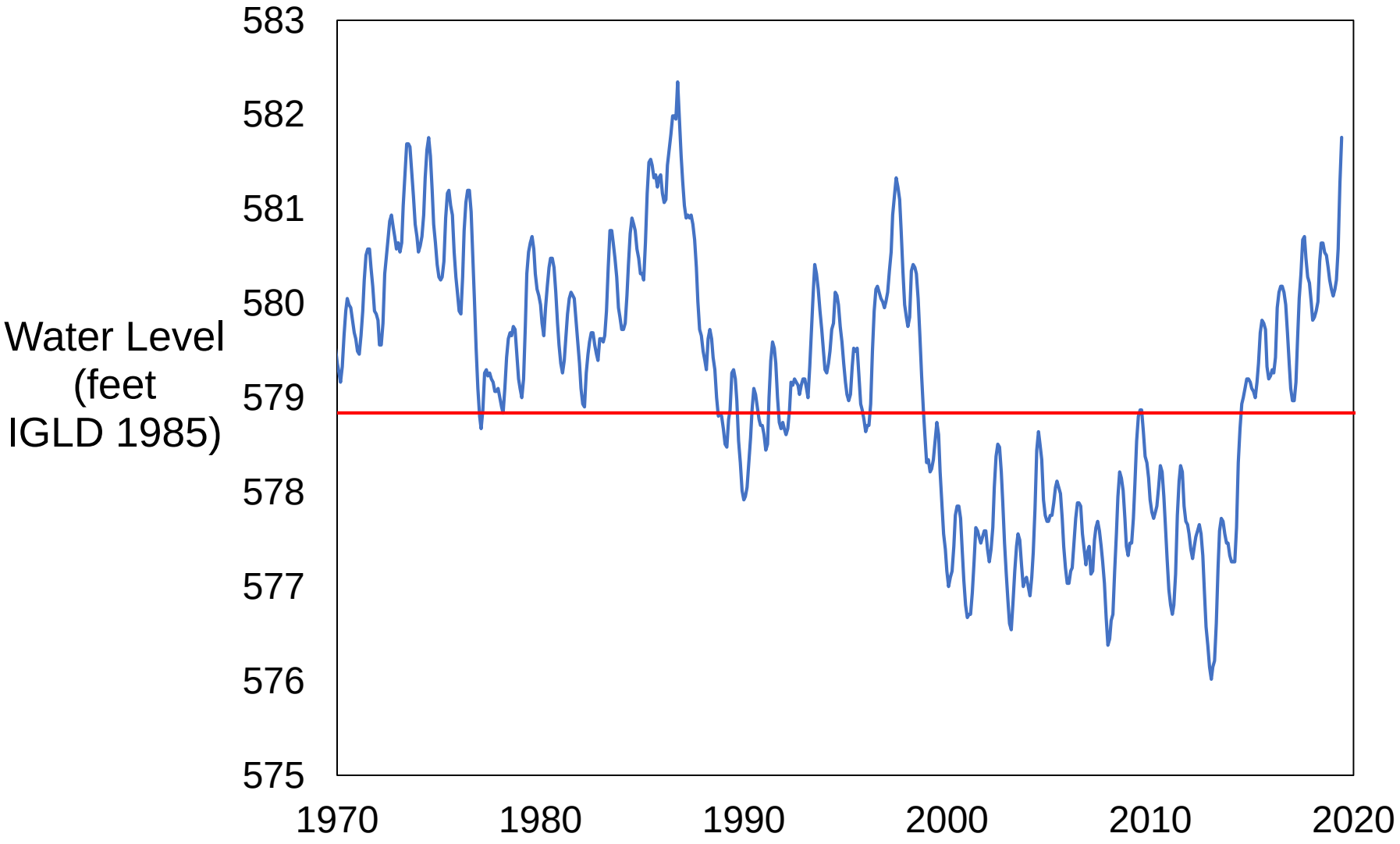
Wisconsin Coastal Management Program

College of Engineering
University of Wisconsin–Madison

SEWRPC
Serving the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha

Sea Grant
University of Wisconsin

# Lake Michigan Water Level (1970 – 2019)



# Coastal Resilience Project Overview

## Enhance community capacity to prepare and plan for coastal hazards in Southeastern Wisconsin

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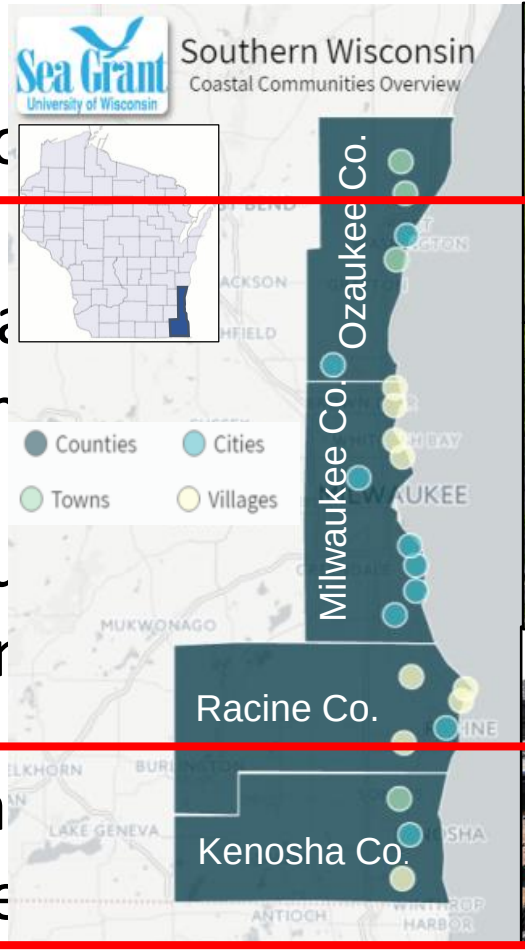
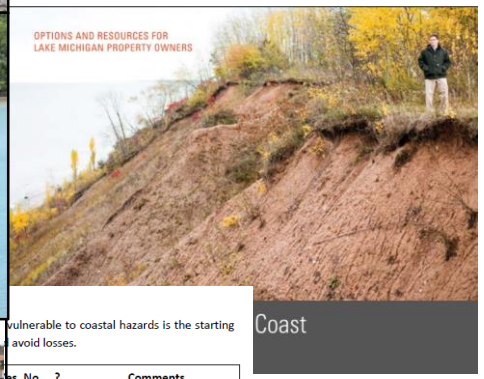
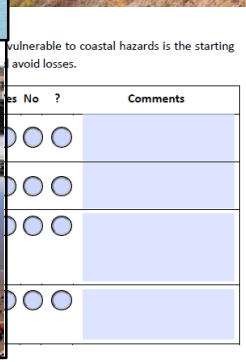
Identify a
Resilience



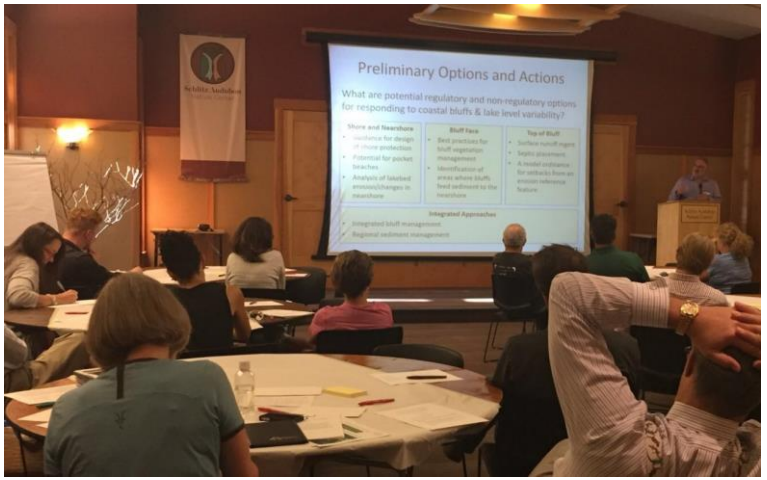



# Community of Practice

Semi-annual meetings for local government staff to discuss, share, and learn about coastal hazards, including:

- Invited speakers on desired topics
- Demonstrate decision-support tools
- Discussions about ongoing projects and potential collaboration
- Field trips to see hazard issues and potential solutions




# Community of Practice

## Coastal Resilience Boat Tours

- Staff from coastal local governments had opportunity to see coastline from the water
- Coastal engineering and geology specialists onboard to interpret sights and answer questions
- Facilitated conversation about coastal hazard issues and ways forward


# Community of Practice

## Lessons Learned

- Participants value the opportunity to interact with their peers and see how others are addressing similar issues

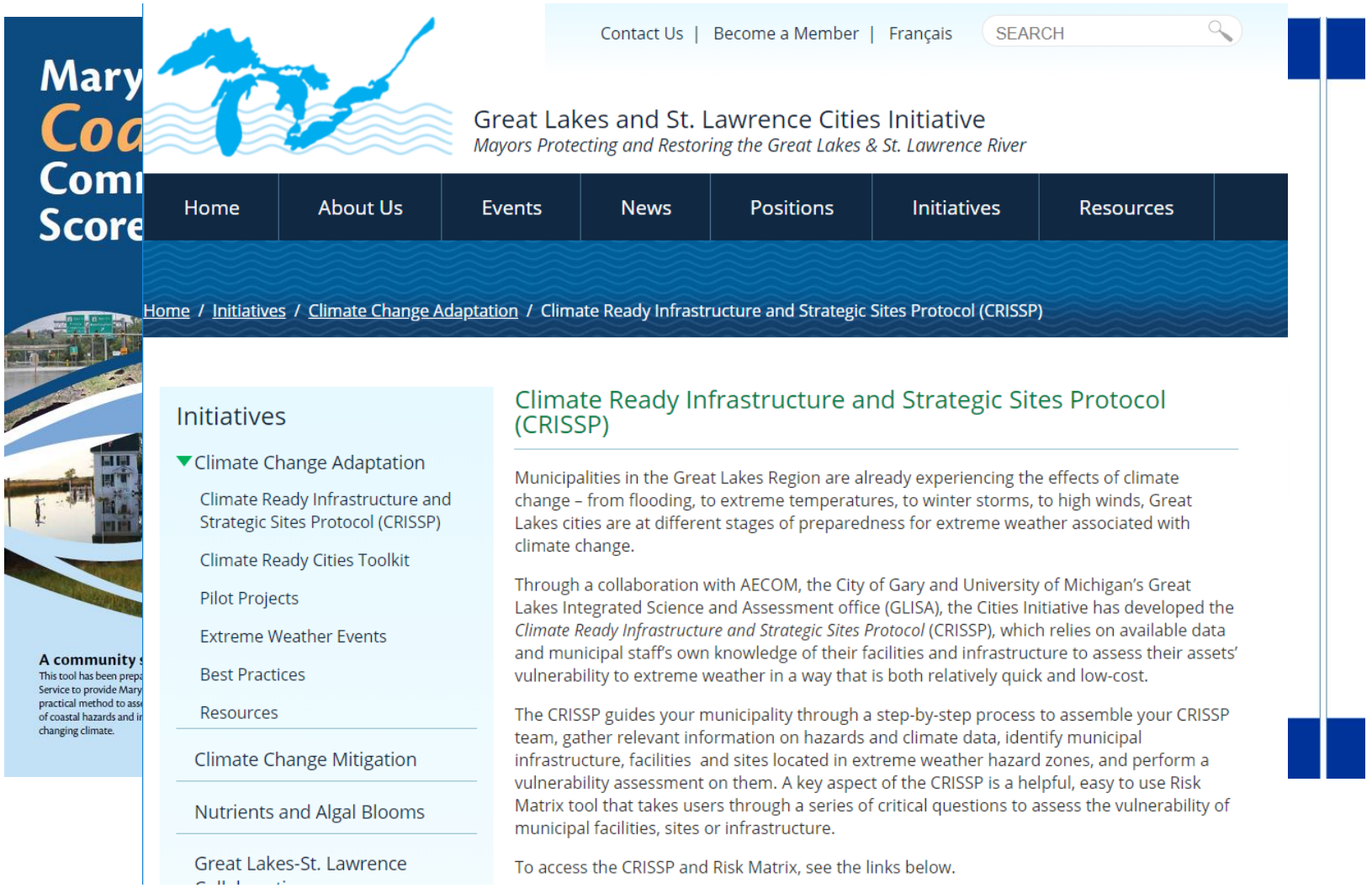
- Sharing a common experience like a field trip or boat tour can prompt thoughtful discussion

- A successful Community of Practice requires leadership from core individuals to bring the group together and facilitate meetings

For More Information See: https://sewicoastalresilience.org/community-of-practice/

# Coastal Resilience Self-Assessment

Provide a starting point to identify opportunities to increase a community's resilience to coastal hazards



# Coastal Resilience Self-Assessment

Series of yes/no questions to help identify common planning and mitigation actions to implement.

**Shore Protection**

Structural shore protection measures such as revetments, seawalls and groins are commonly used to protect property from flooding and erosion. To achieve the expected level of protection, these structures need to be monitored, maintained and replaced when necessary. Alternative hybrid-structural or non-structural practices may be considered due to cost, aesthetics, or adverse impacts to adjacent properties.

| | Shore Protection | Yes | No | ? | Comments |
|---|---|---|---|---|---|
| 23) | Is the location of shore protection structures documented? | ○ | ○ | ○ | |
| 24) | Is the condition and expected effectiveness of shore protection structures documented? | ○ | ○ | ○ | |
| 25) | Is inspection and maintenance of shore protection structures performed routinely? | ○ | ○ | ○ | |
| 26) | Are you aware of instances where shore protection structures adversely impacted adjacent shorelines? | ○ | ○ | ○ | |

Download at: https://sewicoastalresilience.org/resilience-resources/planning-and-policy/

# Coastal Resilience Self-Assessment

Lessons Learned

- The self-assessment works best when completed by a team representing multiple departments in a municipality

- The self-assessment can serve as a catalyst to bring departments together around the issue

- A tool like this won't give "the answer" but it can start the conversation off in the right direction

# Potentially Useful Flooding Assessment

## Great Lakes and St. Lawrence Cities Initiative

**Climate Ready Infrastructure and Strategic Sites Protocol (CRISSP)**

A Simplified Method to Assess the Vulnerability of Municipal Assets to Extreme Weather

June 2016

*Sections:*

A. General Site Information
B. Identify Risk Areas (Geographic –specific)
C. Identify Risk from Other Hazards
D. Immediate Hazard Event Response Capability
E. Site-Specific Flood Risk Components
F. Risk to Strategic Sites

Access CRISSP at: https://glslcities.org/initiatives/municipal-climate-adaptation/crissp/

# Summary

## Regional Collaboration

A Community of Practice is a valuable framework for peers to learn about hazards and develop approaches to address them

## Local Collaboration

Self-Assessment tools can be structured ways to bring different departments together to start conversations about hazard resilience

For More Information

bechle@aqua.wisc.edu

http://sewicoastalresilience.org

@sewiresilience

# Links

- SE WI Coastal Resilience Webpage - https://sewicoastalresilience.org/
- Coastal Resilience Self-Assessment
  https://sewicoastalresilience.org/resilience-resources/planning-and-policy/

Other Tools

- Climate Ready Infrastructure and Strategic Sites Protocol (CRISSP) Risk Matrix Great Lakes and St. Lawrence Cities Initiative
  https://glslcities.org/initiatives/municipal-climate-adaptation/crissp/
- Climate Adaptation Checklist University of Wisconsin Sea Grant Institute https://publications.aqua.wisc.edu/product/great-lakes-coastal-community-climate-adaptationchecklist/
- A Self-Assessment to Address Climate Change Readiness in Your Community: Great Lakes Minnesota Sea Grant https://glslcities.org/library/a-self-assessment-to-address-climate-change-readiness-in-your-community

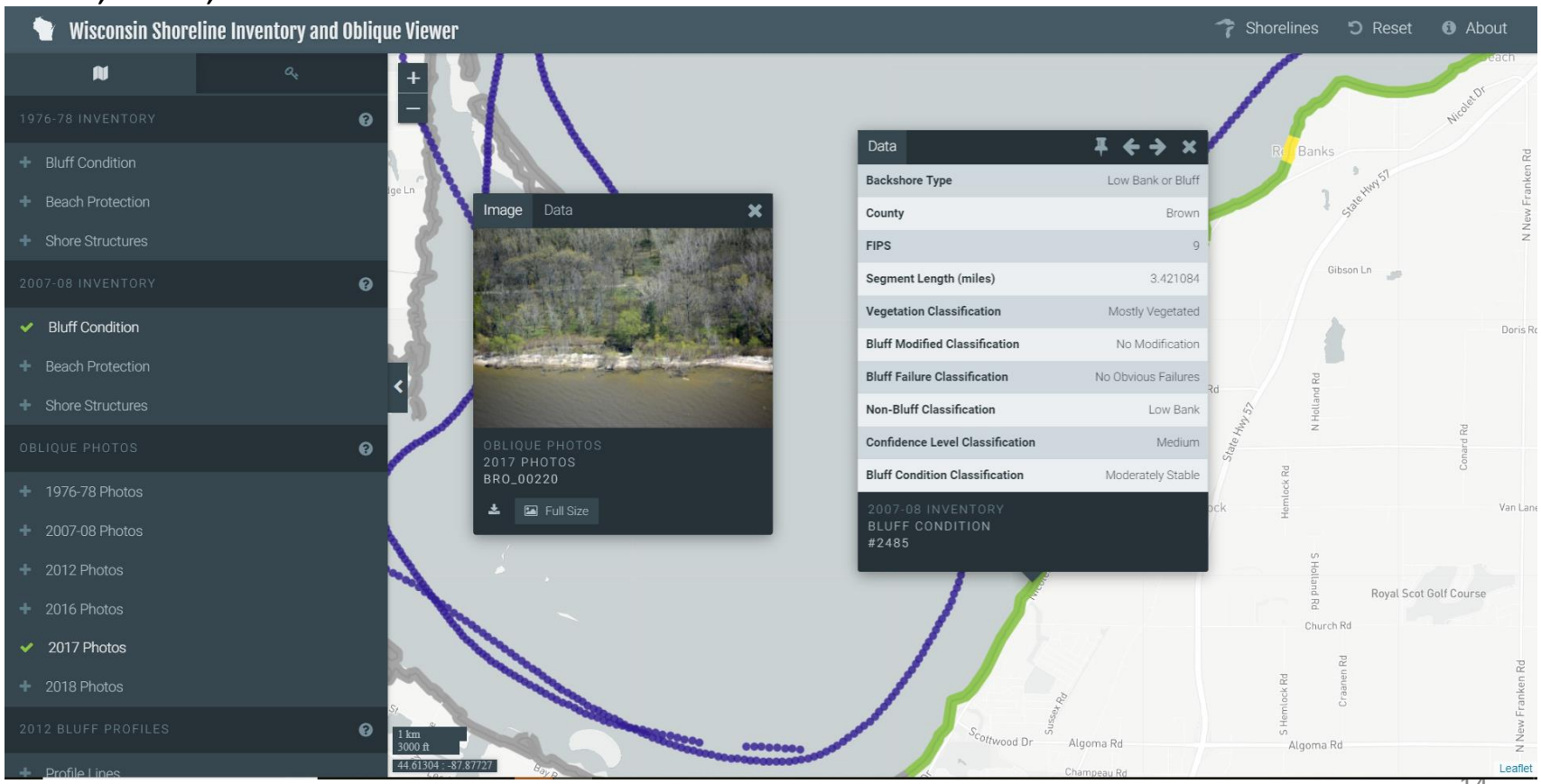
# Resources for Coastal Communities

- Adapting to a Changing Coast – Options and Resources for Lake Michigan Property Owners – Publication with 16 options across 5 themes to help coastal property owners adapt to changing water levels and storms on Lake Michigan
- Adapting to a Changing Coast – Options and Resources for Local Officials in Southeastern Wisconsin Coastal Communities – Publication with 28 options across 4 themes to help local government officials address changing water levels and storms on Lake Michigan
- Living on the Coast – Booklet describing natural coastal processes and strategies to manage risk to coastal properties
- Placing Erosion Control Structures on Great Lakes – Website with information on requirements and considerations for shore protection projects in Wisconsin
- Stabilizing Coastal Slopes on the Great Lakes – Fact sheet describing shoreline erosion and slope instability
- Working with Engineers and Contractors on Shore Protection Projects – Fact sheet describing the process of finding and working with qualified coastal professional
- Great Lakes Shore Protections Structures and Their Effects on Coastal Processes – Fact sheet describing shore protection structures and their effects, both positive and negative, on the shoreline
- Ohio Coastal Design Manual – Online manual demonstrating how Great Lakes coastal structures are designed

# Wisconsin Shoreline Inventory and Oblique Viewer

The Wisconsin Shoreline Inventory and Oblique Photo Viewer is a web-based, interactive map of Wisconsin coastal data that enables users to visualize the temporal changes to Wisconsin's shorelines. The inventory includes:

- Oblique aerial photos of Wisconsin's coast from 1976, 2008, 2012, 2017, and 2018
- A qualitative inventory of shoreline conditions (bluff condition & shoreline type) from 1976, 2008, and soon-to-be-added 2018.




www.floodatlas.org/asfpm/oblique_viewer/

# Resources for Ports and Harbors

- Great Lakes Port and Harbor Infrastructure and Dredging Cost Evaluation Matrix – A matrix model to estimate the cost of building and maintaining structures at large ports in the Great Lakes

- Failing Coastal Wood Infrastructure on the Great Lakes – Fact sheet on timber structure failure mechanisms and potential solutions

- Best Practice Inspection Guidelines for Great Lakes Port, Harbor and Marina Structures – Fact sheet with inspection guidelines to prevent structure deterioration

- Climate Change and Adaptation Strategies for Great Lakes Ports, Harbors and Marinas – Fact sheet on potential future Great Lakes water levels and their possible impacts to waterfront facilities

- Wisconsin Clean Marina Best Management Practices – Guidebook that describes regulations and practices that address marine facilities and nonpoint sources of pollution